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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,611	02/26/2004	Takashi Hikosaka	008312-0308525	2829
909	7590	03/27/2006	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP			BERNATZ, KEVIN M	
P.O. BOX 10500			ART UNIT	
MCLEAN, VA 22102			PAPER NUMBER	

1773

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/786,611	Applicant(s) HIKOSAKA ET AL.	
	Examiner Kevin M. Bernatz	Art Unit 1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-14, 16 and 17 is/are rejected.
- 7) ☒ Claim(s) 6 and 15 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/26/04; 4/28/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Examiner's Comments

1. Regarding the limitation(s) "magnetic recording layer" in claims 1 - 17, the Examiner has given the term(s) the broadest reasonable interpretation(s) consistent with the written description in applicants' specification as it would be interpreted by one of ordinary skill in the art. *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997); *In re Donaldson Co., Inc.*, 16 F.3d 1190, 1192-95, 29 USPQ2d 1845, 1848-50 (Fed. Cir. 1994). See MPEP 2111. Specifically, the Examiner notes that the layer must be disclosed as capable of storing data, i.e. soft "keeper" magnetic layers are excluded from reading on the term "magnetic recording layer" since one of ordinary skill in the art would appreciate that a soft magnetic film does not possess the necessary coercivity to function as a recording layer.
2. The examiner notes that claims 9 - 17 are apparatus claims containing a non-nominal method apparatus element (i.e. claim 10). However, because these claims presently do not represent an undo burden to examination, no restriction has been made. Amendment of any claims to include additional non-nominal apparatus elements that would represent an undo burden may result in restriction due to original presentation.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: after "Medium" insert the phrase: "Including a High-Magnetostriction Layer".

Claim Objections

4. Claims 6 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 – 5, 7 – 14, 16 and 17 are rejected under 35 U.S.C. 102(a), (b) and/or (e) as being anticipated by Sakai et al. (U.S. Patent App. No. 2002/0018917 A1).

Regarding claims 1, 4, 7, 9, 13 and 16, Sakai et al. disclose a magnetic recording medium (*Title*) comprising a multi-layer including a magnetic recording layer (*Paragraphs 0047 – 0052 – CoCrPtTa magnetic layer*) and a rare-earth (RE) transition-metal (TM) layer (*Paragraphs 0047 – 0052 and Figure 2*).

Regarding the limitation in the relative magnetostriction values, it has been held that where claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. Therefore, the *prima facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the instant case, the Examiner notes that the disclosed prior art embodiments are substantially identical in structure as applicants' claimed embodiments, especially the embodiments in Figure 2 represented by 20 and 35% Tb (where RFe₂ in claims 7 and 16 indicate 33% of the rare earth element). Therefore, in addition to the above

disclosed limitations, the presently claimed property of the relative magnetostriction is deemed to be inherently present in at least some, if not all, the prior art embodiments. Applicants are reminded that a single embodiment is sufficient for a *prima facie* case of anticipation.

Regarding claims 2 and 11, Sakai et al. disclose a perpendicular magnetic recording layer (*Title and Paragraph 0020*).

Regarding claims 3 and 12, Sakai et al. disclose a soft magnetic back layer and an intercoat (*Figure 1 and Paragraphs 0047 – 0052: CoZrNb and TiCr*). The Examiner deems that the TiCr inherently meets the limitations of having a lower Young's modulus than the CoZrNb layer.

Regarding claims 5 and 14, the Examiner deems that the relative Ms values are inherently met for the same reasons as applied above with regard to the relative magnetostriction values.

Regarding claims 8 and 17, Sakai et al. disclose recording layers meeting applicants' claimed composition limitations (*Paragraphs 0047 – 0052*).

Regarding claim 10, the Examiner notes that single pole recording heads are known embodiments of magnetic heads used to read and write to perpendicular recording media, of which Sakai et al. explicitly teach the use of for recording and reproducing (*Paragraph 0050*). The Examiner deems there is sufficient specificity in the disclosure of Paragraph 0050 to anticipate the claimed apparatus limitation.

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7. Claims 1, 4, 5, 7 – 10, 13, 14, 16 and 17 are rejected under 35 U.S.C. 102(a), (b) and/or (e) as being anticipated by Fullerton et al. (U.S. Patent No. 6,440,589 B1).

Regarding claims 1, 4, 5, 7, 9, 13, 14 and 16, Fullerton et al. disclose a magnetic recording medium (*Title*) comprising a multi-layer including a magnetic recording layer (*Figure 2, element 15 and col. 6, line 60 bridging col. 7, line 20*) and a pure Co layer (*Figure 2, element 17 and col. 6, line 60 bridging col. 7, line 20*).

Regarding the limitation in the relative magnetostriction values, it has been held that where claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. Therefore, the *prima facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the instant case, the Examiner notes that the disclosed prior art embodiments are substantially identical in structure as applicants' claimed embodiments, especially

the embodiment noted above where it is taught that the pure Co layer has a saturation magnetization significantly larger than that of the recording layer (as required in applicants' claims 5 and 14). Therefore, in addition to the above disclosed limitations, the presently claimed property of the relative magnetostriction is deemed to be inherently present in the disclosed embodiment.

Regarding claims 8 and 17, Fullerton et al. disclose recording layers meeting applicants' claimed composition limitations (*col. 6, line 60 bridging col. 7, line 20*).

Regarding claim 10, the Examiner notes that single pole recording heads are known embodiments of magnetic heads used to read and write to magnetic recording media, of which Fullerton et al. explicitly teach the use of for recording and reproducing (*through-out entire reference*). The Examiner deems there is sufficient specificity in the disclosure of Fullerton et al. to anticipate the claimed apparatus limitation.

8. Claims 1, 4, 5, 7, 9, 10, 13, 14 and 16 are rejected under 35 U.S.C. 102(a), (b) and/or (e) as being anticipated by Iwasaki et al. (U.S. Patent No6,387,476 B1).

Regarding claims 1, 4, 5, 7, 9, 13, 14 and 16, Iwasaki et al. disclose a magnetic recording medium (*Title*) comprising a multi-layer including a storage layer (i.e. applicants' "magnetic recording layer") (*Figure 7, element 43 and col. 14, line 48 bridging col. 16, line 28*) and strain-sensitive magnetic layer formed of TbFe₂ or ErFe₂ (*Figure 7, element 42 and col. 11, line 48 bridging col. 12, line 40*).

Regarding the limitation in the relative magnetostriction values, it has been held that where claimed and prior art products are identical or substantially identical in

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structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established and the burden of proof is shifted to applicant to show that prior art products do not necessarily or inherently possess characteristics of claimed products where the rejection is based on inherency under 35 USC 102 or on *prima facie* obviousness under 35 USC 103, jointly or alternatively. Therefore, the *prima facie* case can be rebutted by **evidence** showing that the prior art products do not necessarily possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

In the instant case, the Examiner notes that the disclosed prior art embodiments are substantially identical in structure as applicants' claimed embodiments, especially the embodiments noted above where it is taught to use TbFe_2 or ErFe_2 as the strain-sensitive magnetic layer, which are exactly identical to the materials disclosed by applicants in pending claims 7 and 16. Therefore, in addition to the above disclosed limitations, the presently claimed property of the relative magnetostriction is deemed to be inherently present in the disclosed embodiment.

Regarding claims 5 and 14, the Examiner deems that the relative M_s values are inherently met for the same reasons as applied above with regard to the relative magnetostriction values.

Regarding claim 10, the Examiner notes that single pole recording heads are known embodiments of magnetic heads used to read and write to magnetic recording media, of which Iwasaki et al. explicitly teach the use of for recording and reproducing (*col. 21, line 41 bridging col. 25, line 30*). The Examiner deems there is sufficient specificity in the disclosure of Iwasaki et al. to anticipate the claimed apparatus limitation.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al. as applied above, and further in view of Tomiyama et al. (U.S. Patent App. No. 2006/0028752 A1).

Sakai et al. is relied upon as described above.

While the Examiner maintains that Sakai et al. discloses the claimed limitation with sufficient specificity, the Examiner acknowledges that Sakai et al. fail to explicitly disclose using a single pole magnetic head.

However, Tomiyama et al. teach using a single pole magnetic head capable of securing a sufficiently stable recorded state with high density longitudinal or

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perpendicular magnetic recording media (*Paragraphs 0005, 0006, 0010, 0019, 0081 and 0116*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Sakai et al. to utilize a single pole magnetic head as taught by Tomiyama et al. since such a head can secure a sufficiently stable recorded state with high density longitudinal or perpendicular magnetic recording media.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fullerton et al. as applied above, and further in view of Tomiyama et al. ('752 A1).

Fullerton et al. is relied upon as described above.

While the Examiner maintains that Fullerton et al. discloses the claimed limitation with sufficient specificity, the Examiner acknowledges that Fullerton et al. fail to explicitly disclose using a single pole magnetic head.

However, Tomiyama et al. teach using a single pole magnetic head capable of securing a sufficiently stable recorded state with high density longitudinal or perpendicular magnetic recording media (*Paragraphs 0005, 0006, 0010, 0019, 0081 and 0116*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Fullerton et al. to utilize a single pole magnetic head as taught by Tomiyama et al. since such a head can secure a sufficiently

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stable recorded state with high density longitudinal or perpendicular magnetic recording media.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Iwasaki et al. as applied above, and further in view of Tomiyama et al. ('752 A1).

Iwasaki et al. is relied upon as described above.

While the Examiner maintains that Iwasaki et al. discloses the claimed limitation with sufficient specificity, the Examiner acknowledges that Iwasaki et al. fail to explicitly disclose using a single pole magnetic head.

However, Tomiyama et al. teach using a single pole magnetic head capable of securing a sufficiently stable recorded state with high density longitudinal or perpendicular magnetic recording media (*Paragraphs 0005, 0006, 0010, 0019, 0081 and 0116*).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Iwasaki et al. to utilize a single pole magnetic head as taught by Tomiyama et al. since such a head can secure a sufficiently stable recorded state with high density longitudinal or perpendicular magnetic recording media.

Allowable Subject Matter

13. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to teach or render obvious the use of a "high-magnetostriction layer" possessing both a high magnetostriction layer and a separate layer possessing a saturated magnetic field larger than the recording layer.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sakai et al. (U.S. Patent No. 6,913,837 B2) and Ikeda et al. (U.S. Patent No. 6,468,670 B1) are both prior art references that would appear to inherently meet some, if not all of applicants' claimed limitations for substantially the same reasons as applied in the above rejections (*Paragraphs 5 - 7*). The Examiner has not presently applied them against the pending claims, but wishes to call applicants' attention to them since they are extremely similar in structure (especially in the choice of materials) to applicants' disclosed invention.

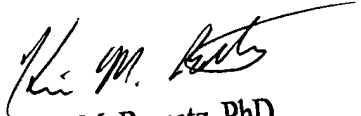
15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Bernatz whose telephone number is (571) 272-1505. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KMB
March 17, 2006



Kevin M. Bernatz, PhD
Primary Examiner